# AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

1       1. (Currently amended) A computerized method for determining
2   implications in a word-level network, comprising:
3           generating a graph data structure representation for a set of constraints
4   associated with a circuit design, comprising one or more nodes, each node having
5   an associated range;
6           identifying a first unjustified Boolean node;
7           limiting a first input range, of a first input to the first unjustified Boolean
8   node, to contain no value of type non-controlling;
9           performing a first implication process, upon the ranges of the graph data
10  structure, using the first input range limitation;
11          limiting a second input range, of a second input to the first unjustified
12  Boolean node, to contain no value of type non-controlling;
13          performing a second implication process, upon the ranges of the graph
14  data structure, using the second input range limitation;
15          accumulating a first result of the first implication process with a second
16  result of the second implication process to create an accumulated result; and
17          displaying the accumulated result to a circuit designer to facilitate
18  implementing the circuit design.


1       2. (Original) The method of claim 1, further comprising the following
2   steps:

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3   identifying a third unjustified Boolean node as a result of limiting the first

4 input to the first unjustified Boolean node; and

5   limiting an input range, of an input to the third unjustified Boolean node,

6 to contain no value of type non-controlling.


1   3. (Original) The method of claim 1, further comprising:

2   identifying a third unjustified Boolean node; and

3   performing the first implication process with a combination of an input

4 range, of an input to the third unjustified Boolean node, set to contain no value of

5 type non-controlling and the first input range, of the first input to the first

6 unjustified Boolean node, set to contain no value of type non-controlling.


1   4. (Original) The method of claim 3, further comprising:

2   identifying the first unjustified Boolean node, and the third unjustified

3 Boolean node, as a result of the set of constraints.


1   5. (Previously presented) The method of claim 3, wherein the

2 identification of a third unjustified Boolean node is limited to be within a

3 pre-determined number of levels of the first unjustified Boolean node.


1   6. (Previously presented) The method of claim 2, wherein the

2 identification of a third unjustified Boolean node is limited to be within a

3 pre-determined number of levels of the first unjustified Boolean node.


1   7. (Original) The method of claim 2, further comprising:

2   removing the third unjustified Boolean node, from further limitation of an

3 input range to contain no value of type non-controlling, if an inclusion of the third

4 unjustified Boolean node, in an implication process, produces an amount of

5     learned implications that is below a threshold of learned implications that is

6     determined from an inclusion of at least a fourth unjustified Boolean node in a

7     previous implication process.


1         8. (Original) The method of claim 2, further comprising:

2         removing the third unjustified Boolean node, from further limitation of an

3     input range to contain no value of type non-controlling, if an inclusion of the third

4     unjustified Boolean node, in an implication process, produces a percentage of

5     learned implications that is below a threshold percentage of learned implications

6     that is determined from an inclusion of at least a fourth unjustified Boolean node

7     in a previous implication process.


1         9. (Original) A computer program product comprising:

2         a computer usable medium having computer readable code embodied

3     therein for determining implications in a word-level network, the computer

4     program product including:

5         computer readable program code devices configured to cause a computer

6     to effect generating a graph data structure representation, comprising one or more

7     nodes, each node having an associated range;

8         computer readable program code devices configured to cause a computer

9     to effect identifying a first unjustified Boolean node;

10         computer readable program code devices configured to cause a computer

11     to effect limiting a first input range, of a first input to the first unjustified Boolean

12     node, to contain no value of type non-controlling;

13         computer readable program code devices configured to cause a computer

14     to effect performing a first implication process, upon the ranges of the graph data

15     structure, using the first input range limitation;

16    computer readable program code devices configured to cause a computer

17  to effect limiting a second input range, of a second input to the first unjustified

18  Boolean node, to contain no value of type non-controlling;

19    computer readable program code devices configured to cause a computer

20  to effect performing a second implication process, upon the ranges of the graph

21  data structure, using the second input range limitation;

22    computer readable program code devices configured to cause a computer

23  to effect accumulating a first result of the first implication process with a second

24  result of the second implication process.


1    10. (Currently amended) ~~An electromagnetic waveform~~<u>A computer-</u>

2  <u>readable storage medium</u> comprising a computer program, the computer program

3  for determining implications in a word-level network, the computer program

4  comprising the following steps when executed by a data processing system:

5    generating a graph data structure representation, comprising one or more

6  nodes, each node having an associated range;

7    identifying a first unjustified Boolean node;

8    limiting a first input range, of a first input to the first unjustified Boolean

9  node, to contain no value of type non-controlling;

10    performing a first implication process, upon the ranges of the graph data

11  structure, using the first input range limitation;

12    limiting a second input range, of a second input to the first unjustified

13  Boolean node, to contain no value of type non-controlling;

14    performing a second implication process, upon the ranges of the graph

15  data structure, using the second input range limitation;

16    accumulating a first result of the first implication process with a second

17  result of the second implication process.

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